

State Indicators

S-49 Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D

Description

This indicator represents the relationship between the number of academic S&E publications and the amount of money expended for academic S&E R&D. Academic institutions include 2-year colleges, 4-year colleges or universities, medical schools, and university-affiliated research centers. This indicator is not an efficiency measure; it is affected by the highly variable costs of R&D and by publishing conventions in different fields and institutions. It may also reflect variations in field emphasis among states and institutions. Decreases in this indicator may be an effect of general price inflation as well as rising academic research costs.

Publication counts are based on the number of articles that appear in a set of journals tracked by Elsevier's Scopus database as of December 2016. The journal set consists of S&E publications (including publications on the natural sciences, the applied sciences, the medical sciences, and the social sciences but excluding the arts and humanities). Only documents published in refereed scientific journals are counted (mostly articles, reviews, and conference proceedings), as these documents were reviewed by peers prior to being accepted for publication. The peer-review process is designed to ensure that the research is of good quality and constitutes an original contribution to scientific knowledge. Fractional counting at the level of researchers is used to ensure that a single paper is not counted several times. For example, if two of three authors are in state A and the third author is in state B, then two-thirds of the publication is attributed to state A, and one-third is attributed to state B.

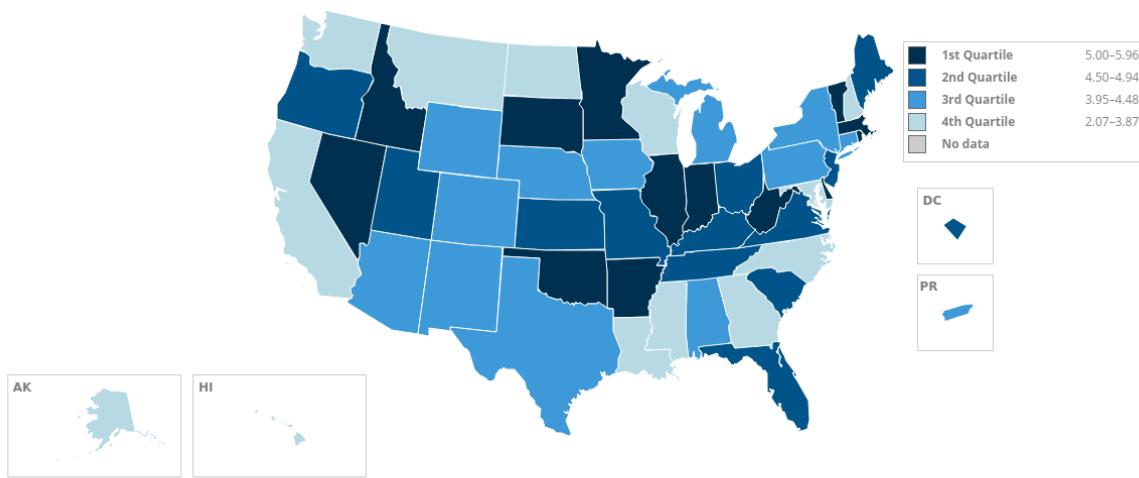
Data on academic R&D are provided by the National Center for Science and Engineering Statistics and represent R&D at U.S. colleges and universities with over \$150,000 in R&D expenditures.

Data source: Science-Metrix, special tabulations from Scopus; National Science Foundation, National Center for Science and Engineering Statistics, Higher Education Research and Development.

State Indicators

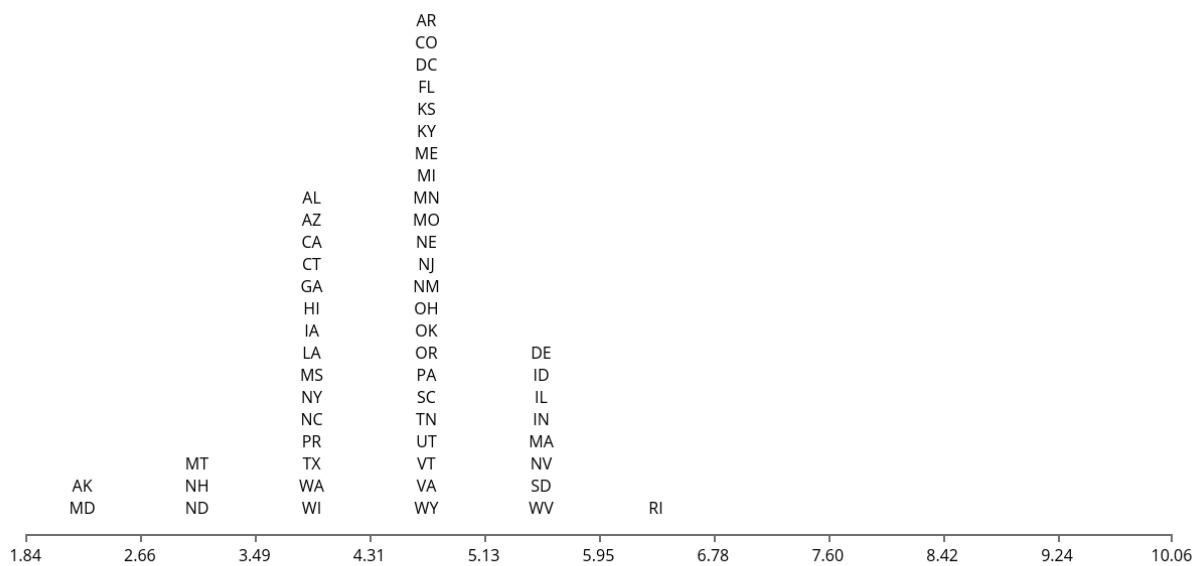
S-49 Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D

2018



Distribution of states across indicator values, 2018

State Indicators



Histograms do not display states with extreme values. Please consult the data tables for exact indicator values for each state. State positions on the histogram are based on unrounded values of the indicator and may not always match the rounded values displayed in the table.

State Indicators

Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D

(Articles)

State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
United States	7.68	7.14	6.88	6.38	6.08	5.72	5.73	5.84	5.71	5.67
Alabama	5.90	6.13	6.10	5.87	5.36	5.05	5.38	5.52	5.59	5.29
Alaska	2.93	2.19	2.00	2.06	2.00	1.92	1.84	2.42	1.94	2.69
Arizona	7.23	6.64	6.76	6.10	6.16	5.78	5.80	5.77	5.53	5.63
Arkansas	7.03	7.63	6.80	6.65	7.01	5.32	6.27	6.04	5.13	5.63
California	7.18	6.53	6.18	5.69	5.44	5.26	4.94	5.09	5.05	5.01
Colorado	7.20	6.56	6.52	6.57	5.88	5.48	5.46	5.39	5.60	5.24
Connecticut	8.97	8.53	7.89	7.17	6.98	6.51	6.61	6.67	6.68	6.58
Delaware	10.29	8.93	10.06	9.00	9.31	8.31	8.42	9.00	8.46	8.52
District of Columbia	7.61	7.74	7.25	8.01	7.00	6.83	6.57	6.73	6.98	6.39
Florida	8.63	7.46	7.58	6.47	6.50	6.07	6.29	6.41	6.38	6.39
Georgia	5.67	5.49	5.30	5.24	5.09	4.98	5.32	5.48	5.35	5.42
Hawaii	5.32	4.65	4.99	5.13	4.62	4.59	3.87	4.06	4.06	4.16
Idaho	5.86	5.42	5.51	5.46	4.91	4.91	4.76	4.83	6.03	5.99
Illinois	8.55	8.19	7.98	7.35	6.90	6.37	6.54	6.77	6.70	6.77
Indiana	9.69	8.75	8.32	7.31	7.29	6.61	6.15	7.59	7.35	6.96
Iowa	7.85	7.18	6.86	6.31	6.13	5.89	5.82	6.12	5.84	5.67
Kansas	7.42	6.90	6.72	6.26	6.07	5.80	5.69	5.78	5.58	5.34
Kentucky	7.25	6.81	6.85	6.51	6.39	5.62	5.26	5.77	5.30	5.34
Louisiana	7.02	6.57	5.92	5.25	5.28	5.04	4.79	5.28	4.92	4.42
Maine	11.09	9.02	7.19	5.99	6.11	5.43	5.13	5.80	4.64	4.43
Maryland	4.72	4.68	4.54	4.18	3.78	3.66	3.60	3.67	3.42	3.56
Massachusetts	9.91	9.69	9.57	9.26	9.03	8.46	8.50	8.65	8.89	8.75

State Indicators

State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Michigan	7.49	7.18	6.70	6.36	6.14	5.69	6.01	6.31	6.29	6.36
Minnesota	8.61	8.28	7.84	7.09	6.96	6.77	7.07	7.51	6.77	6.88
Mississippi	6.46	5.78	4.71	3.90	4.06	3.70	3.59	4.19	4.21	3.61
Missouri	8.33	7.31	6.78	6.34	6.23	5.45	5.57	5.71	5.80	5.69
Montana	5.10	4.74	4.05	4.19	3.98	3.43	3.17	3.16	3.68	3.59
Nebraska	7.58	6.26	6.49	5.78	5.30	4.79	5.37	5.02	4.99	5.01
Nevada	6.85	6.58	5.61	5.55	5.57	4.87	4.91	4.96	4.99	5.16
New Hampshire	6.13	5.15	5.07	3.92	4.08	3.69	3.52	3.78	3.61	3.67
New Jersey	8.57	7.65	7.55	6.70	6.73	6.47	6.28	6.32	6.44	6.51
New Mexico	5.05	5.38	5.03	4.22	4.29	4.04	4.63	4.17	3.61	3.85
New York	8.51	7.77	7.50	7.13	6.67	6.15	6.05	5.98	5.87	5.68
North Carolina	7.29	6.59	6.65	6.05	5.68	5.39	5.60	5.30	5.32	5.20
North Dakota	6.82	5.76	5.31	4.16	3.81	3.48	3.41	4.09	4.01	3.61
Ohio	8.97	8.50	8.17	7.68	7.25	6.55	6.68	6.14	5.84	5.56
Oklahoma	6.14	5.69	5.44	5.47	5.71	5.27	6.30	6.21	6.18	6.36
Oregon	6.71	6.39	6.43	5.96	6.19	5.63	5.35	5.32	5.28	5.31
Pennsylvania	8.58	8.19	7.65	7.24	6.75	6.69	6.53	6.75	6.56	6.68
Rhode Island	10.78	10.58	9.76	8.68	7.98	7.43	7.65	7.92	7.29	7.19
South Carolina	7.06	6.37	6.34	5.29	4.97	4.74	4.98	4.95	4.70	4.33
South Dakota	7.28	8.00	7.14	6.66	5.74	4.88	4.24	4.75	4.16	4.66
Tennessee	8.73	8.21	7.57	7.43	6.52	5.81	5.74	5.62	5.69	5.72
Texas	7.21	6.63	6.27	5.66	5.28	5.14	5.30	5.47	5.22	5.24
Utah	8.62	7.67	7.07	6.52	6.45	6.08	6.50	7.13	7.19	7.50
Vermont	7.69	7.32	7.89	6.48	5.63	4.79	4.97	5.29	5.31	5.78
Virginia	8.97	8.10	8.37	7.87	7.17	6.81	6.49	6.67	6.43	6.59
Washington	7.39	7.15	6.85	6.25	5.99	5.61	5.65	6.10	5.52	5.70

State Indicators

State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
West Virginia	9.86	7.92	7.89	7.40	5.79	5.33	5.29	5.28	5.41	4.90
Wisconsin	7.50	6.57	6.08	5.33	5.10	4.92	4.87	4.96	4.88	4.96
Wyoming	5.78	5.87	5.56	5.69	7.12	4.95	5.43	4.20	4.27	5.26
Puerto Rico	3.20	3.02	3.63	4.59	4.64	5.62	4.31	4.43	5.25	4.92

Note(s):

Articles were fractionally allocated among regions/countries/economies based on the proportion of residences of all named authors. The publication total for the United States reported here includes Puerto Rico, as well as articles for which the location could not be determined. Academic R&D is reported for institutions with R&D over \$150,000. The national total for the United States includes U.S. territories.

Source(s):

Science-Metrix, special tabulations from Scopus, data as of July 2019; National Center for Science and Engineering Statistics, National Science Foundation, Higher Education Research and Development Survey (various years), data as of November 2019.

Recommended Citation: National Science Board. "Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D." Science and Engineering Indicators: State Indicators. Alexandria, VA: National Science Foundation. <https://ncses.nsf.gov/indicators/states/indicator/academic-se-articles-per-1-million-in-academic-rd>. Accessed on [date of user access].

Last updated: April 29, 2020

Science and Engineering Indicators

State Indicators

Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D

(Articles)

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
United States	5.49	5.30	5.10	5.03	5.07	5.07	5.08	4.96	4.73	4.56
Alabama	4.95	4.57	4.15	4.16	4.65	4.76	4.76	4.33	4.05	4.09
Alaska	3.18	2.77	2.80	3.00	2.99	3.35	2.44	2.63	2.13	2.15
Arizona	5.37	5.18	5.23	5.11	4.90	4.81	5.21	4.93	4.82	4.47
Arkansas	5.23	5.49	5.16	5.11	5.13	5.20	5.43	5.05	5.22	5.38
California	4.84	4.71	4.68	4.62	4.60	4.61	4.57	4.41	4.21	4.10
Colorado	5.09	4.53	4.33	4.38	4.50	4.90	5.10	4.93	4.64	4.48
Connecticut	6.48	6.55	5.69	5.69	5.90	5.31	5.63	5.34	4.98	4.59
Delaware	8.36	8.17	6.34	6.29	6.42	6.21	6.11	5.93	5.34	5.48
District of Columbia	5.59	6.65	5.28	5.46	5.42	5.38	5.45	5.24	5.06	4.73
Florida	6.39	6.27	5.94	5.73	5.82	5.91	5.51	5.44	5.19	5.06
Georgia	4.90	4.91	4.96	4.99	4.92	4.86	4.77	4.58	4.27	3.96
Hawaii	4.17	3.77	3.66	3.56	3.46	3.59	3.74	3.55	3.68	3.53
Idaho	5.81	5.95	5.37	5.46	4.68	5.42	5.72	5.10	5.09	5.07
Illinois	6.47	6.13	6.17	6.00	5.99	5.74	6.26	6.18	6.09	5.87
Indiana	6.62	6.50	6.54	6.12	6.26	5.98	6.43	6.26	6.01	5.89
Iowa	6.55	6.08	4.95	4.84	4.98	5.18	4.95	4.94	4.54	4.66
Kansas	4.95	5.11	4.98	5.15	5.06	4.86	4.91	5.11	5.24	5.03
Kentucky	5.45	5.00	4.99	5.20	5.23	5.63	5.61	5.68	5.29	4.99
Louisiana	4.11	4.14	4.50	4.48	4.42	4.50	4.36	4.54	4.23	4.18
Maine	4.19	4.63	4.91	4.75	4.99	5.93	5.04	5.66	5.90	5.13
Maryland	3.25	2.95	2.96	2.89	3.02	3.04	2.92	2.83	2.77	2.60
Massachusetts	8.64	8.12	7.78	7.85	7.45	6.99	7.25	6.69	6.34	6.11

State Indicators

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Michigan	6.12	5.92	5.47	5.43	5.29	5.30	5.33	5.13	4.89	4.60
Minnesota	6.25	6.04	5.69	5.63	5.59	5.53	5.33	5.36	5.12	5.21
Mississippi	4.02	3.95	3.88	3.78	3.83	4.31	4.45	4.05	4.01	3.72
Missouri	5.81	5.53	5.83	5.75	5.48	5.66	5.83	5.58	5.27	5.27
Montana	3.37	3.42	3.09	3.55	3.55	3.58	3.90	3.92	3.61	2.97
Nebraska	4.74	4.52	4.74	5.11	4.71	4.85	4.73	4.89	4.83	4.57
Nevada	5.63	5.70	6.04	6.49	6.31	6.46	6.41	6.64	5.75	5.45
New Hampshire	3.57	3.82	3.97	3.38	3.46	3.68	3.71	3.86	3.36	3.01
New Jersey	6.40	6.17	5.49	5.34	5.55	5.33	5.31	5.54	5.43	5.13
New Mexico	3.69	3.64	3.77	3.92	4.04	4.01	4.28	4.35	4.40	4.40
New York	5.72	5.56	4.95	4.80	4.90	4.83	4.75	4.72	4.42	4.16
North Carolina	4.91	4.57	4.22	4.18	4.31	4.28	4.21	4.11	3.93	3.89
North Dakota	3.97	3.56	3.64	3.56	3.68	3.91	3.85	4.03	4.00	3.86
Ohio	5.41	5.19	5.04	5.02	5.31	5.38	5.41	5.45	5.22	5.04
Oklahoma	6.16	6.29	5.56	5.56	5.62	6.13	5.74	5.91	5.31	5.42
Oregon	5.21	4.73	4.49	4.68	4.94	4.95	5.19	5.03	5.03	4.91
Pennsylvania	6.45	6.15	5.81	5.76	5.84	5.81	5.87	5.77	4.97	4.61
Rhode Island	7.14	6.85	6.20	5.65	5.84	6.20	5.43	5.47	6.07	6.63
South Carolina	4.67	4.35	4.61	5.17	5.25	5.49	5.57	5.66	5.34	5.29
South Dakota	4.39	4.18	3.66	3.92	4.34	4.96	5.34	5.53	5.44	5.58
Tennessee	5.86	5.57	5.39	5.34	5.36	5.56	5.06	5.32	5.42	4.96
Texas	4.91	4.76	4.68	4.76	4.78	4.74	4.64	4.49	4.36	4.31
Utah	7.15	6.35	6.00	5.85	5.94	5.42	5.45	5.24	6.87	7.14
Vermont	5.54	5.13	4.99	4.81	5.78	5.95	6.46	5.61	5.90	5.44
Virginia	6.36	6.26	6.12	5.58	5.83	5.59	5.90	5.88	5.61	5.47
Washington	5.34	5.16	4.49	4.24	4.45	4.43	4.43	4.35	4.23	3.97

State Indicators

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
West Virginia	4.85	5.24	5.12	5.15	5.13	5.55	5.31	5.94	5.71	5.88
Wisconsin	4.70	4.46	4.38	4.19	4.32	4.53	4.61	4.61	4.29	4.03
Wyoming	5.63	5.23	8.15	8.80	7.59	8.57	10.84	8.62	4.63	3.96
Puerto Rico	4.90	5.31	5.19	3.34	3.65	3.77	4.40	4.14	4.19	4.31

Note(s):

Articles were fractionally allocated among regions/countries/economies based on the proportion of residences of all named authors. The publication total for the United States reported here includes Puerto Rico, as well as articles for which the location could not be determined. Academic R&D is reported for institutions with R&D over \$150,000. The national total for the United States includes U.S. territories.

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Last updated: April 29, 2020

Science and Engineering Indicators

State Indicators

Academic Science and Engineering Article Output per \$1 Million of Academic S&E R&D

(Articles)

State	2018
United States	4.28
Alabama	3.95
Alaska	2.07
Arizona	4.06
Arkansas	5.00
California	3.72
Colorado	4.41
Connecticut	4.30
Delaware	5.38
District of Columbia	4.50
Florida	4.86
Georgia	3.77
Hawaii	3.70
Idaho	5.16
Illinois	5.51
Indiana	5.73
Iowa	4.30
Kansas	4.70
Kentucky	4.86
Louisiana	3.87
Maine	4.94
Maryland	2.47
Massachusetts	5.82

State Indicators

State	2018
Michigan	4.34
Minnesota	5.00
Mississippi	3.85
Missouri	4.88
Montana	3.28
Nebraska	4.43
Nevada	5.17
New Hampshire	2.98
New Jersey	4.59
New Mexico	4.36
New York	3.96
North Carolina	3.70
North Dakota	3.46
Ohio	4.73
Oklahoma	5.00
Oregon	4.52
Pennsylvania	4.32
Rhode Island	5.96
South Carolina	4.55
South Dakota	5.72
Tennessee	4.64
Texas	4.15
Utah	4.78
Vermont	5.11
Virginia	4.88
Washington	3.65

State Indicators

State	2018
West Virginia	5.78
Wisconsin	3.78
Wyoming	4.48
Puerto Rico	4.14

Note(s):

Articles were fractionally allocated among regions/countries/economies based on the proportion of residences of all named authors. The publication total for the United States reported here includes Puerto Rico, as well as articles for which the location could not be determined. Academic R&D is reported for institutions with R&D over \$150,000. The national total for the United States includes U.S. territories.

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Last updated: April 29, 2020

Science and Engineering Indicators

State Indicators

Academic S&E article output

State	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
United States	204,771	203,332	198,535	196,742	207,078	209,385	221,121	229,272	247,614	267,299
Alabama	2,869	2,745	2,609	2,557	2,612	2,628	2,696	2,785	3,075	3,258
Alaska	206	211	223	206	214	245	258	272	269	372
Arizona	3,048	3,082	2,937	2,915	3,152	3,056	3,270	3,572	3,776	4,153
Arkansas	843	875	823	854	897	945	989	979	1,148	1,268
California	24,395	24,344	24,351	23,930	25,152	25,185	26,573	28,184	29,718	31,920
Colorado	3,562	3,511	3,519	3,335	3,554	3,765	3,790	3,808	4,213	4,443
Connecticut	3,450	3,610	3,652	3,574	3,700	3,576	3,753	3,871	4,288	4,471
Delaware	694	699	751	679	785	720	819	873	968	1,044
District of Columbia	1,865	1,822	1,773	1,734	1,784	1,826	1,828	1,918	1,992	2,038
Florida	6,175	6,066	6,152	5,882	6,454	6,375	7,063	7,315	8,222	9,284
Georgia	4,670	4,740	4,559	4,615	4,909	5,187	5,478	5,865	6,499	6,983
Hawaii	772	782	787	730	803	805	799	850	933	975
Idaho	407	445	422	390	408	448	457	516	557	580
Illinois	9,328	9,236	8,810	9,020	9,350	9,421	9,947	10,283	11,203	11,997
Indiana	4,328	4,261	4,126	4,026	4,234	4,271	4,749	4,796	5,172	5,769
Iowa	2,882	2,966	2,819	2,692	2,868	2,775	2,977	2,938	3,096	3,353
Kansas	1,733	1,645	1,581	1,621	1,735	1,684	1,821	1,797	1,894	2,018
Kentucky	1,914	1,863	1,755	1,872	1,898	1,940	2,134	2,124	2,232	2,606
Louisiana	2,643	2,459	2,485	2,476	2,429	2,291	2,518	2,588	2,676	3,086
Maine	408	416	388	397	417	425	458	456	508	563
Maryland	6,442	6,356	6,275	6,488	6,848	6,915	7,155	7,473	8,171	8,655
Massachusetts	13,440	13,580	13,352	13,589	14,220	14,623	15,332	15,411	17,006	17,984
Michigan	7,081	6,989	6,614	6,624	6,758	7,048	7,581	7,903	8,398	9,187

State Indicators

State	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Minnesota	3,315	3,327	3,167	3,122	3,277	3,326	3,507	3,509	3,781	4,190
Mississippi	1,040	969	988	1,012	1,021	1,019	1,173	1,200	1,251	1,479
Missouri	4,198	4,226	4,040	4,018	4,165	4,300	4,398	4,399	4,687	5,098
Montana	381	359	393	398	401	453	485	484	492	540
Nebraska	1,501	1,417	1,410	1,283	1,350	1,398	1,414	1,441	1,745	1,808
Nevada	608	563	575	599	595	644	708	755	806	883
New Hampshire	700	721	717	654	765	773	897	930	975	1,086
New Jersey	4,212	4,187	4,156	3,986	4,286	4,210	4,647	4,875	5,054	5,477
New Mexico	1,279	1,270	1,157	1,210	1,227	1,156	1,258	1,240	1,406	1,506
New York	17,290	17,113	16,415	16,122	17,230	17,534	18,283	18,784	20,174	21,451
North Carolina	6,698	6,703	6,558	6,680	6,925	6,894	7,269	7,531	8,106	8,775
North Dakota	417	371	389	357	356	354	404	466	518	614
Ohio	7,397	7,508	7,263	7,062	7,500	7,648	8,086	8,306	8,820	9,409
Oklahoma	1,452	1,385	1,284	1,359	1,370	1,394	1,609	1,555	1,784	1,813
Oregon	2,107	2,152	2,106	2,096	2,225	2,180	2,396	2,459	2,703	2,853
Pennsylvania	11,946	11,867	11,579	11,393	11,880	12,261	12,918	13,480	14,428	15,989
Rhode Island	1,254	1,218	1,207	1,280	1,269	1,241	1,300	1,390	1,468	1,585
South Carolina	1,762	1,688	1,750	1,706	1,865	1,908	1,987	2,064	2,273	2,418
South Dakota	223	223	182	208	200	213	218	244	250	318
Tennessee	3,110	3,122	3,030	3,053	3,066	3,178	3,202	3,486	3,779	4,079
Texas	12,665	12,602	12,231	12,138	12,786	12,755	13,382	14,209	15,269	16,814
Utah	2,084	2,192	2,147	2,093	2,178	2,204	2,323	2,341	2,644	2,850
Vermont	472	503	454	476	513	499	507	512	577	619
Virginia	4,516	4,456	4,459	4,088	4,639	4,806	4,973	5,283	5,512	6,073
Washington	4,310	4,192	4,014	4,219	4,414	4,425	4,699	4,888	5,071	5,504
West Virginia	709	639	631	523	600	607	585	666	714	771

State Indicators

State	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Wisconsin	4,236	4,018	4,018	3,920	4,025	3,889	4,119	4,317	4,665	4,957
Wyoming	318	296	283	276	239	239	299	297	326	349
Puerto Rico	291	315	282	275	272	294	325	438	375	443

State Indicators

Academic S&E article output

State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
United States	272,857	280,745	284,972	290,585	297,551	311,490	315,453	320,978	323,622	321,941
Alabama	3,367	3,463	3,507	3,479	3,442	3,655	3,741	3,842	3,740	3,762
Alaska	317	352	407	366	395	423	407	445	413	415
Arizona	4,227	4,411	4,464	4,522	4,714	4,856	4,840	4,881	5,140	5,086
Arkansas	1,215	1,352	1,292	1,311	1,321	1,386	1,415	1,452	1,462	1,405
California	32,783	33,740	34,022	34,901	35,499	36,640	37,256	37,133	37,100	36,799
Colorado	4,597	4,575	4,699	4,798	4,894	5,436	5,618	5,882	6,041	6,050
Connecticut	4,626	4,546	4,747	4,933	4,930	5,255	5,454	5,537	5,798	5,680
Delaware	1,032	1,073	1,112	1,095	1,027	1,119	1,137	1,167	1,142	1,091
District of Columbia	2,067	2,154	2,095	2,160	2,276	2,436	2,465	2,491	2,652	2,561
Florida	9,713	9,951	10,168	10,441	10,564	10,865	11,228	11,368	11,115	11,324
Georgia	6,976	7,531	7,447	7,696	7,986	8,271	8,415	8,703	8,826	8,792
Hawaii	1,043	1,141	1,164	1,130	1,152	1,161	1,136	1,216	1,238	1,168
Idaho	669	683	657	720	660	759	669	753	789	730
Illinois	12,214	12,633	12,775	12,953	13,247	13,573	13,593	13,824	14,012	14,124
Indiana	6,054	6,226	6,324	6,529	6,853	6,988	7,202	7,185	7,520	7,462
Iowa	3,346	3,326	3,456	3,424	3,416	3,418	3,464	3,593	3,682	3,588
Kansas	1,975	2,006	2,000	2,252	2,295	2,407	2,429	2,429	2,384	2,504
Kentucky	2,541	2,685	2,720	2,596	2,685	2,893	2,862	2,901	2,839	2,839
Louisiana	2,719	2,671	2,713	2,778	2,960	2,993	2,891	2,848	2,738	2,764
Maine	557	607	536	592	584	613	594	611	610	560
Maryland	8,659	9,046	8,925	8,908	9,161	9,742	9,976	10,266	10,279	10,498
Massachusetts	18,871	19,009	19,636	20,002	20,458	22,025	22,426	22,681	23,340	22,780
Michigan	9,259	9,610	9,750	10,315	10,400	11,030	10,996	11,320	11,268	11,287

State Indicators

State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Minnesota	4,093	4,384	4,366	4,576	4,566	4,875	4,702	4,809	4,718	4,729
Mississippi	1,555	1,483	1,631	1,647	1,620	1,631	1,676	1,663	1,687	1,544
Missouri	5,222	5,358	5,582	5,577	5,618	5,657	5,791	5,826	5,913	5,835
Montana	637	642	627	623	606	647	657	626	670	674
Nebraska	1,792	1,827	1,784	1,780	1,817	2,010	1,973	2,037	2,023	2,130
Nevada	969	991	1,076	1,038	1,032	1,039	940	949	936	983
New Hampshire	1,137	1,128	1,078	1,138	1,186	1,156	1,210	1,235	1,253	1,300
New Jersey	5,527	5,634	5,615	5,638	5,613	5,832	5,883	5,967	5,739	5,812
New Mexico	1,519	1,577	1,539	1,582	1,536	1,569	1,579	1,569	1,712	1,645
New York	22,391	22,576	22,778	23,208	23,669	24,485	25,251	25,704	25,907	25,706
North Carolina	9,102	9,788	9,711	9,868	10,234	10,890	11,282	11,420	11,544	11,290
North Dakota	641	610	718	663	738	744	787	832	832	859
Ohio	9,567	9,834	9,879	9,830	9,906	10,573	10,712	11,023	11,055	10,990
Oklahoma	1,842	1,901	2,052	2,121	2,130	2,322	2,323	2,360	2,249	2,315
Oregon	2,939	3,055	3,098	3,015	2,977	3,280	3,363	3,308	3,480	3,421
Pennsylvania	15,959	16,287	16,791	16,748	17,598	18,440	18,251	18,800	18,837	18,757
Rhode Island	1,676	1,654	1,692	1,684	1,785	1,863	1,962	1,989	2,057	2,061
South Carolina	2,464	2,463	2,689	2,665	2,846	2,983	2,959	3,111	3,153	3,238
South Dakota	304	382	404	426	465	517	534	561	534	536
Tennessee	4,228	4,355	4,608	4,641	4,743	5,083	5,186	5,409	5,465	5,436
Texas	17,061	17,910	18,377	18,958	19,744	21,084	21,091	21,753	21,595	21,535
Utah	2,971	3,111	3,045	3,175	3,314	3,592	3,613	3,648	3,670	3,748
Vermont	659	665	648	641	664	659	694	714	736	668
Virginia	6,090	6,400	6,696	6,813	6,945	7,248	7,490	7,398	7,589	7,662
Washington	5,454	5,592	5,650	5,596	5,861	6,096	6,117	6,211	6,207	6,226
West Virginia	812	819	820	911	912	1,010	969	1,026	977	1,116

State Indicators

State	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wisconsin	5,080	5,293	5,246	5,370	5,396	5,616	5,751	5,787	5,869	5,665
Wyoming	380	421	422	408	440	484	486	540	531	474
Puerto Rico	546	526	549	558	597	507	514	468	515	501

State Indicators

Academic S&E article output

State	2016	2017	2018
United States	320,018	323,104	319,627
Alabama	3,715	3,898	3,957
Alaska	348	368	333
Arizona	5,171	5,100	5,220
Arkansas	1,482	1,556	1,555
California	36,065	36,499	36,410
Colorado	6,153	6,286	6,557
Connecticut	5,695	5,553	5,380
Delaware	1,015	1,074	1,065
District of Columbia	2,449	2,484	2,462
Florida	11,502	11,897	12,017
Georgia	8,669	8,628	8,605
Hawaii	1,156	1,049	1,088
Idaho	763	791	830
Illinois	13,799	13,918	13,427
Indiana	7,427	7,623	7,633
Iowa	3,517	3,662	3,601
Kansas	2,508	2,525	2,542
Kentucky	2,784	2,806	2,801
Louisiana	2,666	2,652	2,660
Maine	578	616	622
Maryland	10,388	10,330	10,159
Massachusetts	22,316	22,200	21,618
Michigan	11,357	11,492	11,298

State Indicators

State	2016	2017	2018
Minnesota	4,679	4,787	4,755
Mississippi	1,653	1,626	1,686
Missouri	5,730	5,890	5,783
Montana	667	641	701
Nebraska	2,163	2,184	2,205
Nevada	995	1,013	1,148
New Hampshire	1,216	1,244	1,256
New Jersey	5,794	5,851	5,660
New Mexico	1,571	1,594	1,568
New York	25,695	25,159	24,847
North Carolina	11,201	11,643	11,498
North Dakota	883	930	833
Ohio	10,720	10,912	10,646
Oklahoma	2,276	2,390	2,276
Oregon	3,530	3,591	3,484
Pennsylvania	18,439	18,218	17,971
Rhode Island	2,008	2,022	2,037
South Carolina	3,233	3,268	3,057
South Dakota	555	603	635
Tennessee	5,626	5,618	5,610
Texas	21,782	22,488	22,140
Utah	3,689	3,857	3,749
Vermont	708	658	679
Virginia	7,603	7,860	7,523
Washington	6,447	6,355	6,136
West Virginia	1,079	1,165	1,162

State Indicators

State	2016	2017	2018
Wisconsin	5,733	5,657	5,433
Wyoming	505	483	506
Puerto Rico	490	465	410
<i>Science and Engineering Indicators</i>			

State Indicators

Academic S&E R&D

State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
United States	25,867	27,543	30,083	32,801	36,383	40,077	43,238	45,774	47,759	49,495
Alabama	442	417	428	448	503	551	572	590	602	655
Alaska	76	94	107	119	129	142	146	154	163	131
Arizona	406	439	466	501	531	618	651	720	765	783
Arkansas	117	112	132	142	141	184	183	210	237	240
California	3,392	3,665	4,068	4,429	4,888	5,358	6,013	6,265	6,490	6,734
Colorado	489	508	545	573	645	695	771	825	821	873
Connecticut	407	419	469	499	538	595	649	670	692	691
Delaware	73	76	78	80	88	105	115	116	122	126
District of Columbia	233	224	246	228	261	281	303	303	296	337
Florida	713	789	852	986	1,086	1,205	1,307	1,449	1,522	1,558
Georgia	804	841	927	989	1,077	1,177	1,222	1,274	1,303	1,389
Hawaii	148	157	161	157	173	185	241	240	257	274
Idaho	72	72	74	82	93	105	117	120	111	114
Illinois	1,031	1,102	1,171	1,281	1,441	1,614	1,713	1,771	1,824	1,867
Indiana	426	460	509	584	651	726	841	760	824	894
Iowa	359	375	418	440	486	499	532	548	573	587
Kansas	213	235	258	269	300	310	333	349	354	376
Kentucky	242	275	277	298	334	378	424	452	479	503
Louisiana	354	377	410	436	477	514	559	584	553	604
Maine	35	44	58	71	75	84	99	97	120	137
Maryland	1,330	1,387	1,508	1,654	1,895	2,041	2,268	2,357	2,530	2,542
Massachusetts	1,348	1,402	1,486	1,579	1,697	1,822	2,000	2,080	2,123	2,172
Michigan	883	922	1,008	1,109	1,234	1,390	1,397	1,456	1,473	1,510

State Indicators

State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Minnesota	368	377	418	469	504	518	535	558	605	637
Mississippi	153	175	217	261	289	324	348	353	369	411
Missouri	485	550	614	678	706	807	842	893	900	941
Montana	77	84	99	108	122	141	155	171	173	179
Nebraska	186	205	208	242	267	301	325	360	359	365
Nevada	84	91	106	116	127	155	164	178	194	192
New Hampshire	117	127	151	197	220	252	277	287	315	307
New Jersey	485	521	568	628	691	754	805	866	858	865
New Mexico	229	225	244	274	293	307	304	361	421	410
New York	1,930	2,075	2,297	2,458	2,743	3,055	3,332	3,585	3,813	3,972
North Carolina	900	1,013	1,041	1,139	1,279	1,398	1,447	1,655	1,710	1,884
North Dakota	57	62	67	85	106	134	152	150	160	169
Ohio	810	831	918	996	1,116	1,268	1,320	1,532	1,638	1,768
Oklahoma	209	239	252	255	282	295	283	292	298	299
Oregon	314	328	346	366	387	437	505	536	557	575
Pennsylvania	1,349	1,391	1,553	1,694	1,914	2,015	2,208	2,368	2,431	2,438
Rhode Island	112	121	130	143	163	187	192	200	230	230
South Carolina	248	268	294	361	400	435	456	488	524	569
South Dakota	25	26	28	32	38	50	59	67	73	82
Tennessee	347	372	405	428	491	600	658	726	743	761
Texas	1,697	1,830	2,038	2,252	2,535	2,765	2,879	3,074	3,271	3,417
Utah	249	273	308	338	360	385	407	400	413	415
Vermont	59	65	65	77	90	107	116	117	124	115
Virginia	497	505	554	611	694	776	849	910	947	971
Washington	543	590	644	708	784	871	897	902	988	981
West Virginia	64	66	76	82	101	125	135	146	150	167

State Indicators

State	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Wisconsin	536	597	662	729	807	878	957	1,000	1,040	1,067
Wyoming	49	47	43	42	42	60	60	83	89	80
Puerto Rico	88	91	75	64	70	78	87	100	104	107

Science and Engineering Indicators

State Indicators

Academic S&E R&D

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
United States	51,872	54,863	58,388	61,988	62,199	63,354	63,767	64,940	67,626	70,887
Alabama	708	762	829	879	805	807	785	868	917	952
Alaska	128	132	141	141	136	133	169	158	163	171
Arizona	831	873	902	951	987	1,014	987	1,031	1,073	1,140
Arkansas	247	239	256	271	276	279	269	278	284	289
California	7,026	7,407	7,580	7,927	8,103	8,056	8,123	8,335	8,564	8,893
Colorado	924	1,058	1,129	1,241	1,249	1,201	1,184	1,226	1,326	1,403
Connecticut	732	753	867	923	925	1,042	1,030	1,063	1,144	1,210
Delaware	133	134	162	178	177	188	187	184	190	196
District of Columbia	375	325	431	446	455	463	487	489	484	525
Florida	1,592	1,664	1,778	1,897	1,930	1,922	2,019	2,081	2,218	2,349
Georgia	1,521	1,566	1,611	1,658	1,712	1,789	1,850	1,918	2,030	2,177
Hawaii	279	300	315	326	328	339	331	329	314	297
Idaho	113	121	123	139	143	139	138	143	150	156
Illinois	1,973	2,113	2,146	2,264	2,270	2,407	2,238	2,284	2,265	2,370
Indiana	955	1,005	1,048	1,142	1,150	1,201	1,169	1,192	1,235	1,294
Iowa	528	563	690	706	695	693	744	726	774	786
Kansas	404	441	461	467	480	500	486	490	479	502
Kentucky	499	519	538	556	547	515	506	500	526	562
Louisiana	660	671	658	668	654	633	628	609	630	634
Maine	128	128	119	129	119	103	121	99	98	120
Maryland	2,747	3,021	3,094	3,367	3,308	3,376	3,515	3,705	3,744	3,967
Massachusetts	2,272	2,463	2,629	2,807	3,011	3,246	3,218	3,406	3,521	3,632
Michigan	1,594	1,742	1,903	2,030	2,077	2,134	2,115	2,202	2,321	2,497

State Indicators

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Minnesota	699	758	803	866	841	870	885	883	913	918
Mississippi	406	417	418	431	438	386	379	381	412	437
Missouri	960	1,009	964	984	1,056	1,029	1,015	1,046	1,088	1,117
Montana	186	182	196	182	185	175	172	172	185	216
Nebraska	376	394	383	393	419	420	428	436	448	478
Nevada	191	182	171	160	149	147	146	148	173	186
New Hampshire	302	298	299	342	350	336	338	337	362	413
New Jersey	878	914	1,023	1,092	1,060	1,120	1,081	1,049	1,067	1,141
New Mexico	417	435	407	400	391	391	400	378	357	362
New York	3,982	4,175	4,782	5,105	5,158	5,327	5,450	5,450	5,818	6,049
North Carolina	1,979	2,161	2,423	2,604	2,619	2,669	2,741	2,745	2,847	2,992
North Dakota	181	186	203	209	214	213	216	213	221	241
Ohio	1,827	1,895	1,964	2,108	2,017	2,048	2,044	2,017	2,055	2,164
Oklahoma	333	337	383	418	413	385	392	392	429	441
Oregon	595	637	663	701	681	668	670	680	702	731
Pennsylvania	2,604	2,722	3,027	3,202	3,126	3,238	3,210	3,249	3,710	3,948
Rhode Island	237	246	288	330	336	321	379	377	331	305
South Carolina	576	612	617	577	564	567	566	572	605	618
South Dakota	92	102	127	132	123	113	100	97	102	108
Tennessee	787	833	880	952	968	973	1,079	1,022	1,038	1,133
Texas	3,744	3,982	4,221	4,428	4,414	4,585	4,659	4,794	4,994	5,216
Utah	426	500	552	614	608	673	674	715	537	540
Vermont	117	125	133	137	120	120	114	119	120	121
Virginia	1,053	1,088	1,134	1,300	1,284	1,323	1,287	1,303	1,356	1,436
Washington	1,058	1,084	1,305	1,438	1,376	1,402	1,400	1,431	1,525	1,601
West Virginia	169	174	178	196	189	185	184	188	189	198

State Indicators

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Wisconsin	1,117	1,204	1,231	1,339	1,330	1,278	1,272	1,228	1,336	1,402
Wyoming	75	78	54	55	64	63	49	55	109	122
Puerto Rico	112	105	115	152	141	124	117	121	117	108

Science and Engineering Indicators

State Indicators

Academic S&E R&D

State	2018
United States	74,667
Alabama	1,003
Alaska	161
Arizona	1,285
Arkansas	311
California	9,780
Colorado	1,487
Connecticut	1,252
Delaware	198
District of Columbia	547
Florida	2,475
Georgia	2,284
Hawaii	294
Idaho	161
Illinois	2,438
Indiana	1,332
Iowa	838
Kansas	541
Kentucky	576
Louisiana	688
Maine	126
Maryland	4,113
Massachusetts	3,717
Michigan	2,604

State Indicators

State	2018
Minnesota	951
Mississippi	438
Missouri	1,184
Montana	214
Nebraska	498
Nevada	222
New Hampshire	422
New Jersey	1,232
New Mexico	360
New York	6,271
North Carolina	3,105
North Dakota	241
Ohio	2,249
Oklahoma	455
Oregon	771
Pennsylvania	4,163
Rhode Island	342
South Carolina	672
South Dakota	111
Tennessee	1,209
Texas	5,333
Utah	784
Vermont	133
Virginia	1,541
Washington	1,680
West Virginia	201

State Indicators

State	2018
Wisconsin	1,439
Wyoming	113
Puerto Rico	99

Science and Engineering Indicators